IT IS THE VENDOR'S RESPONSIBILITY TO CHECK
FOR ADDENDUMS PRIOR TO SUBMITTING PROPOSALS

NOTICE TO BIDDERS
SPECIFICATION NO. 03-113

The City of Lincoln intends to purchase and invites you to submit a sealed bid for:

One (1) Color Multi-Conductor
or
Single-Conductor
TV Sewer Inspection System

Sealed bids will be received by the City of Lincoln, Nebraska on or before 12:00 noon on Wednesday, April 16, 2003 in the office of the Purchasing Agent, 440 South 8 Street, Suite 200, Lincoln, NE 68508. bids will be publicly opened and read in the Purchasing Conference Room.

Bidders should take caution if U.S. mail or mail delivery services are used for the submission of bids. Mailing should be made in sufficient time for bids to arrive in the Purchasing Division, prior to the time and date specified above.

PROPOSAL
SPECIFICATION NO. 03-113
BID OPENING TIME: 12:00 NOON
DATE: Wednesday, April 16, 2003

The undersigned, having full knowledge of the requirements of the City of Lincoln for the below listed phases and the contract documents (which include Notice, Instructions, this Proposal, Specifications, Contract, and any and all addenda) and all other conditions of the Proposal, agrees to enter into a contract with the City the below listed fees for the performance of this Specification, complete in every respect, in strict accordance with the contract documents at and for fees listed below.

ADDENDA RECEIPT: The receipt of addenda to the specification numbers_____through_____are hereby acknowledged. Failure of any submitter to receive any addendum or interpretation of the specifications shall not relieve the submitter from any obligations specified in the request. All addenda shall become part of the final contract document.

ITEM	ITEM DESCRIPTION	QTY.	UNIT	TOTAL
1.	Multi-Conductor Color TV Sewer Inspection System Make_____ Model_____	1 ea.	$_____	$_____
2.	Single conductor TV Sewer Inspection System Make_____ Model_____	1 ea.	$_____	$_____
3.	Optional Color Camera Make_____ Model_____	1 ea.	$_____	$_____
4.	Optional Lateral Evaluation TV System Make_____ Model_____	1 ea.	$_____	$_____

5% BID SECURITY REQUIRED _____YES __X__ NO
PERFORMANCE BOND REQUIRED _____YES __X__ NO

The undersigned signatory for the bidder represents and warrants that he has full and complete authority to submit this proposal to the City, and to enter into a contract if this proposal is accepted.

RETURN 2 COMPLETE COPIES OF PROPOSAL AND SUPPORTING MATERIAL.
MARK OUTSIDE OF BID ENVELOPE: SEALED BID FOR SPEC. 03-113

COMPANY NAME	BY (Signature)
STREET ADDRESS or P.O. BOX	(Print Name)
CITY, STATE ZIP CODE	(Title)
TELEPHONE No. FAX No.	(Date)
EMPLOYER'S FEDERAL I.D. NO. OR SOCIAL SECURITY NUMBER	ESTIMATED DELIVERY DAYS
E-MAIL ADDRESS	TERMS OF PAYMENT

Bids may be inspected in the Purchasing Division offices during normal business hours, **after** tabulation by the purchasing agent. If you desire a copy of the bid tabulation to be mailed to you, you must enclose a self-addressed stamped envelope with your bidding documents. Bid tabulations can also be viewed on our website at: http://www.ci.lincoln.ne.us/city/finance/purch/specindx.htm

INSTRUCTIONS TO BIDDERS

CITY OF LINCOLN, NEBRASKA
PURCHASING DIVISION

1. BIDDING PROCEDURE

1.1 Bidder shall submit two (2) complete sets of the bid documents and all supporting material. All appropriate blanks shall be completed. Any interlineation, alteration or erasure on the specification document shall be initialed by the signer of the bid. Bidder shall not change the proposal form nor make additional stipulations on the specification document. Any amplified or qualifying information shall be on the bidder's letterhead and firmly attached to the specification document.

1.2 Bid prices shall be submitted on the Proposal Form included in the bid document.

1.3 Bidders may submit a bid on an "all or none" or "lump sum" basis, but should also submit a quotation on an item-by-item basis. Bidding documents shall be clearly marked indicating the kind of proposal being submitted.

1.4 Each bid must be legibly printed in ink or by typewriter, include the full name, business address, and telephone number of the bidder; and be signed in ink by the bidder.

1.5 A bid by a firm or organization other than a corporation must include the name and address of each member.

1.6 A bid by a corporation must be signed in the name of such corporation by a duly authorized official thereof.

1.7 Any person signing a bid for a firm, corporation, or other organization must show evidence of his authority so to bind such firm, corporation, or organization.

1.8 Bids received after the time and date established for receiving bids will be rejected.

2. BIDDER'S SECURITY

2.1 Bid security, as a guarantee of good faith, in the form of a certified check, cashier's check, or bidder's bond, may be required to be submitted with this bid document, as indicated of the Proposal Form.

2.2 If alternate bids are submitted, only one bid security will be required, provided the bid security is based on the amount of the highest gross bid.

2.3 Such bid security will be returned to the unsuccessful bidders when the award of bid is made.

2.4 Bid security will be returned to the successful bidder(s) as follows:

2.4.1 For single order bids with specified quantities: upon the delivery of all equipment or merchandise, and upon final acceptance by the City.

2.4.2 For all other contracts: upon approval by the City of the executed contract and bonds.

2.5 City shall have the right to retain the bid security of bidders to whom an award is being considered until either:

2.5.1 A contract has been executed and bonds have been furnished.

2.5.2 The specified time has elapsed so that the bids may be withdrawn.

2.5.3 All bids have been rejected.

2.6 Bid security will be forfeited to the City as full liquidated damages, but not as a penalty, for any of the following reasons, as pertains to this specification document:

2.6.1 If the bidder fails to deliver the equipment or merchandise in full compliance with the accepted proposal and specifications.

2.6.2 If the bidder fails or refuses to enter into a contract on forms provided by the City, and/or if the bidder fails to provide sufficient bonds or insurance within the time period as established in this specification document.

3. EQUAL OPPORTUNITY

3.1 Each bidder agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, disability, age, or marital status. Bidder shall fully comply with the provisions of Chapter 11.08 of the Lincoln Municipal Code.

3.2 Successful bidder will be required to comply with the provisions of the City's Affirmative Action Policy (Contract Compliance, Sec. 1.16).

3.3 The Equal Opportunity Officer will determine compliance or non-compliance with the City's Affirmative Action Policy upon a complete and substantial review of successful bidder's equal opportunity policies, procedures and practices.

4. DATA PRIVACY

4.1 Bidder agrees to abide by all applicable State and Federal laws and regulations concerning the handling and disclosure of private and confidential information concerning individuals and corporations as to inventions, copyrights, patents and patent rights.

4.2 The bidder agrees to hold the City harmless from any claims resulting from the bidder's unlawful disclosure or use of private or confidential information.

5. BIDDER'S REPRESENTATION

5.1 Each bidder by signing and submitting a bid, represents that the bidder has read and understands the specification documents, and the bid has been made in accordance therewith.

5.2 Each bidder for services further represents that the bidder is familiar with the local conditions under which the work is to be done and has correlated the observations with the requirements of the bid documents.

6. INDEPENDENT PRICE DETERMINATION

6.1 By signing and submitting this bid, the bidder certifies that the prices in this bid have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to bid opening directly or indirectly to any other bidder or to any competitor; no attempt has been made, or will be made, by the bidder to induce any person or firm to submit, or not to submit, a bid for the purpose of restricting competition.

7. CLARIFICATION OF SPECIFICATION DOCUMENTS

7.1 Bidders shall promptly notify the Purchasing Agent of any ambiguity, inconsistency or error which they may discover upon examination of the specification documents.

7.2 Bidders desiring clarification or interpretation of the specification documents shall make a written request which must reach the Purchasing Agent at least seven (7) calendar days prior to the date and time for receipt of bids.

7.3 Interpretations, corrections and changes made to the specification documents will be made by written addenda.

7.4 Oral interpretations or changes to the Specification Documents made in any other manner, will not be binding on the City; and bidders shall not rely upon such interpretations or changes.

8. ADDENDA

8.1 Addenda are written instruments issued by the City prior to the date for receipt of bids which modify or interpret the specification document by addition, deletion, clarification or correction.

8.2 Addenda will be mailed or delivered to all who are known by the City to have received a complete set of specification documents.

8.3 Copies of addenda will be made available for inspection at the office of the Purchasing Agent.

8.4 No addendum will be issued later than forty-eight (48) hours prior to the date and time for receipt of bids, except an addendum withdrawing the invitation to bid, or an addendum which includes postponement of the bid.

8.5 Bidders shall ascertain prior to submitting their bid that they have received all addenda issued, and they shall acknowledge receipt of addenda on the proposal form.

9. ANTI-LOBBYING PROVISION

9.1 During the period between the bid close date and the contract award, bidders, including their agents and representatives, shall not directly discuss or promote their bid with any member of the City Council or City Staff except in the course of City-sponsored inquiries, briefings, interviews, or presentations, unless requested by the City.

10. BRAND NAMES

10.1 Wherever in the specifications or proposal form brand names, manufacturer, trade name, or catalog numbers are specified, it is for the purpose of establishing a grade or quality of material only; and the term "or equal" is deemed to follow.

10.2 It is the bidder's responsibility to identify any alternate items offered in the bid, and prove to the satisfaction of the City that said item is equal to, or better than, the product specified.

10.3 Bids for alternate items shall be stated in the appropriate brand on the proposal form, or if the proposal form does not contain blanks for alternates, bidder MUST attach to the specification documents on Company letterhead a statement identifying the manufacturer and brand name of each proposed alternate, plus a complete description of the alternate items including illustrations, performance test data and any other information necessary for an evaluation. The bidder must indicate any variances by item number from the specification document no matter how slight. Bidder must fully explain the variances from the specification document, since brochure information may not be sufficient.

10.4 If variations are not stated in the proposal, it will be assumed that the item being bid fully complies with the City's specifications.

11. DEMONSTRATIONS/SAMPLES

11.1 Bidders shall demonstrate the exact item(s) proposed within seven (7) calendar days from receipt of such request from the City.

11.2 Such demonstration can be at the City delivery location or a surrounding community.

11.3 If bidder does not have an item in the area, it will be at the bidder's expense to send appropriate City personnel to the nearest location to view and inspect proposed item(s).

11.4 If items are small and malleable, and the bidder is proposing an alternate product, the bidder MUST supply a sample of the exact item. Samples will be returned at bidder's expense after receipt by the City of acceptable goods. Bidders must indicate how samples are to be returned.

12. DELIVERY

12.1 Each bidder shall state on his proposal form the date upon which he can make delivery of all equipment or merchandise. Time required for delivery is hereby made an essential element of the bid.

12.2 The City reserves the right to cancel orders, or any part thereof, without obligation, if delivery is not made within the time(s) specified on the proposal form.

12.3 All bids shall be based upon **inside** delivery of the equipment or merchandise F.O.B. the City at the location specified by the City, with all transportation charges paid.

13. WARRANTIES, GUARANTEES AND MAINTENANCE

13.1 Copies of the following documents must accompany the bid proposal for all items being bid:

13.1.1 Manufacturer's warranties and/or guarantees.

13.1.2 Bidder's maintenance policies and associated costs.

13.2 As a minimum requirement of the City, the bidder will guarantee in writing that any defective components discovered within a one (1) year period after the date of acceptance shall be replaced at no expense to the City. Replacement parts of defective components shall be shipped at no cost to the City. Shipping costs for defective parts required to be returned to the bidder shall be paid by the bidder.

13.3 Bidder Warrants and represents to the City that all software/firmware/ hardware/equipment /systems developed, distributed, installed or programmed by Bidder pursuant to this Specification and Agreement.

13.3.1 That all date recognition and processing by the software/firmware/hardware/equipment/system will include the four-digit-year format and will correctly recognize and process the date of February 29, and any related data, during Leap years; and

13.3.2 That all date sorting by the software /firmware/hardware/ equipment/system that includes a “year category” shall be done based on the four-digit-year format. Upon being notified in writing by the City of the failure of any software/ firmware/ hardware /equipment /systems to comply with this Specification and Agreement, Contractor will, within 60 days and at no cost to the City, replace or correct the non-

complying software/ firmware/ hardware/ equipment/ systems with software/firmware/ hardware/equipment/ systems that does comply with this Specification and Agreement.

13.3.3 No Disclaimers: The warranties and representations set forth in this section 13.3 shall not be subject to any disclaimer or exclusion of warranties or to any limitations of Licensor's liability under this Specification and Agreement.

14. ACCEPTANCE OF MATERIAL

14.1 All components used in the manufacture or construction of materials, supplies and equipment, and all finished materials, shall be new, the latest make/model, of the best quality, and the highest grade workmanship.

14.2 Material delivered under thisproposal shall remain the property of the bidder until:

14.2.1 A physical inspection and actual usage of this material is made and found to be acceptable to the City; and

14.2.2 Material is determined to be in full compliance with the specifications and accepted proposal.

14.3 In the event the delivered material is found to be defective or does not conform to the specification documents and accepted proposal, then the City reserves the right to cancel the order upon written notice to the bidder and return materials to the bidder at bidder's expense.

14.4 Successful bidder shall be required to furnish title to the material, free and clear of all liens and encumbrances, issued in the name of the City of Lincoln, Nebraska, as required by the specification documents or purchase orders.

14.5 Selling dealer's advertising decals, stickers or other signs shall not be affixed to equipment. Vehicle mud flaps shall be installed blank side out with no advertisements. Manufacturer's standard production forgings, stampings, nameplates and logos are acceptable.

15. BID EVALUATION AND AWARD

15.1 The signed bid proposal shall be considered an offer on the part of the bidder. Such offer shall be deemed accepted upon issuance by the City of purchase orders, contract award notifications, or other contract documents appropriate to the work.

15.2 No bid shall be modified or withdrawn for a period of sixty (60) calendar days after the time and date established for receiving bids, and each bidder so agrees in submitting the bid.

15.3 In case of a discrepancy between the unit prices and their extensions, the unit prices shall govern.

15.4 The bid will be awarded to the lowest responsive, responsible bidder whose proposal will be most advantageous to the City, and as the City deems will best serve their requirements.

15.5 The City reserves the right to accept or reject any or all bids; to request rebids; to award bids item-by-item, by groups, or "lump sum"; to waive irregularities and technicalities in bids; such as shall best serve the requirements and interests of the City.

16. INDEMNIFICATION

16.1 The bidder shall indemnify and hold harmless the City, its members, its officers and employees from and against all claims, damages, losses, and expenses, including, but not limited to attorney's fees arising out of or resulting from the performance of the contract, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property other than goods, materials and equipment furnished under this contract) including the loss or use resulting therefrom; is caused in whole or part by any negligent act or omission of the bidder, any subcontractor, or anyone directly or indirectly employed by any one of them or anyone for whose acts made by any of them may be liable, regardless of whether or not it is caused by a party indemnified hereunder.

16.2 In any and all claims against the City or any of its members, officers or employees by an employee of the bidder, any subcontractor, anyone directly or indirectly employed by any of them or by anyone for whose acts made by any of them may be liable, the indemnification obligation under paragraph 16.1 shall not be limited in any way by any limitation of the amount or type of damages, compensation or benefits payable by or for the bidder or any subcontractor under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

17. TERMS OF PAYMENT

17.1 Unless other specification provisions state otherwise, payment in full will be made by the City within thirty (30) calendar days after all labor has been performed and all equipment or other merchandise has been delivered, and all such labor and equipment and other materials have met all contract specifications.

18. LAWS

18.1 The Laws of the State of Nebraska shall govern the rights, obligations, and remedies of the Parties under this proposal and any agreement reached as a result of this process.

BID SPECIFICATIONS FOR
COLOR TV SEWER INSPECTION SYSTEM

1. General Requirements

1.1 Intent of Specifications. It is the intent and purpose of these specifications to secure for the Owner (City of Lincoln, Nebraska) the necessary equipment and accessories which will comprise a multi-conductor or single-conductor type color sewer TV inspection system.

1.1.1 A detailed list of components required is included and is the basis on which the Contractors proposal is made.

1.2 Materials and Workmanship. All equipment, materials, parts, and workmanship are required to be furnished, will be of the highest grade in accordance with modern practice.

1.2.1 The equipment supplied will be current year (03) new and unused, except for necessary testing, calibration, and transportation.

1.3 Warranty. All items furnished in accordance with these specifications will be covered by the manufacturers and or contractors standard warranty or guarantee on new equipment.

1.3.1 The minimum warranty period on new equipment will be one (1) year from the date of delivery.

1.3.2 Extended Warranty. Contractor will supply additional information detailing the provisions for extended warranty. Extended warranty terms will specify cost and identify specific equipment covered by warranty.

1.4 Experience. The equipment to be furnished will be the product of a qualified firm that is regularly engaged in the manufacture and supply of this equipment.

1.4.1 A qualified firm will be defined to mean one which has manufactured and sold twenty-five (25) or more of the specified units during the past two (2) years.

1.4.2 The Contractor Information Sheet requires a list of ten (10) users to be furnished with the Bid submitted.

1.5 Parts and Service. To best serve the requirements of the Owner, it is the intent of these specifications to secure equipment, which can be properly maintained and serviced without the necessity of stocking an expensive parts inventory or being subjected to long periods of interrupted service due to lack of spare parts.

1.5.1 All Bidders submitting proposals must have available at least one (1) factory parts and service center within the United States.

1.5.2 These centers will be staffed with full-time technical, as well as order and shipping personnel, during regular business hours and days.

1.5.3 These factory centers must have toll-free telephone service and be convenient to air freight, bus, or overnight parcel service.

1.5.4 The Bidder will list the nearest factory part and service location, plus any other pertinent information requested.

1.6 Electronic Equipment Loaner Policy. The Bidder will maintain rental and/or loaner electronic equipment at service center if unable to repair and have ready to return any component of the system within one (1) week of receipt from the purchaser.

1.6.1 The service center will have available a rental or loaner component for immediate shipment.

1.6.2 The Bidder will indicate whether a rental charge is made for this equipment and service both during and after warranty.

1.7 Exceptions and Alternate Bids. Major exceptions to the component list and specification requirements, or failure to submit requested information will be considered sufficient cause for rejection of a proposal. The specifications describe the components and/or system that are necessary to meet the performance requirements of the Owner.

1.7.1 Alternate Bids must meet the intent of the specifications, and any deviations to the specifications will be clearly delineated on the Contractor Information Sheet.

1.8 Information to be Furnished by Bidder. Each Bidder will furnish the information listed in the General Notice at the time the Bid is submitted. Failure to include all required information will be cause for rejection of the Bid (Proposal).

1.9 Pre-Contract Demonstration of the Equipment. The Owner will have the right to have each Bidder (Contractor), demonstrate the exact equipment that will be supplied within two (2) weeks after notification following the opening of Bids. Failure to demonstrate the exact equipment will be just cause for disqualification of the proposal.

1.9.1 The successful installation of the equipment will include a full check out and calibration of all components.

1.10 Training. The Contractor will fully instruct and test Owner's personnel in the operation of the equipment furnished before the delivery at the contractor manufacturing plant. The instruction period will be for 3 working days to fully familiarize the buyers operating personnel.

1.10.1 The instruction period will be of sufficient duration (minimum three day) to fully familiarize the Owners operating personnel with all elements of the equipment, and the appropriate maintenance of the equipment and related parts.

1.10.2 This instruction and testing will be conducted by trained personnel of the Contractor and will include full instruction in equipment operation, field procedures, techniques of use, maintenance, trouble shooting, and recording and logging of field information.

1.11 Service Manuals. The Contractor will furnish at least two (2) copies of suitable service manuals that describe in detail the proper operation and maintenance of the equipment furnished under the contract.

1.11.1 The manuals will contain a current, complete parts and price lists for re-ordering, and the equipment actually furnished under this contract will be highlighted to identify exact part and model numbers for each component.

1.12 Schematic of Electrical Components. The delivered system will include two (2) sets of detailed electrical schematics of all electrical equipment including the color TV, power system, TV reel, power tractor, video player, cameras, data recorder, color monitor, and control panel equipment.

1.12.1 A complete legend of abbreviations and symbols used will be included.

1.13 Payment to the Contractor. Full payment under this contract will be made by the Owner in a single, lump sum payment within thirty (30) calendar days after the successful completion of all contract requirements by the Contractor.

1.13.1 The contract requirements will include the required furnishing, installation, and demonstration of equipment and accessories as specified herein, including the furnishing of the required training and service manuals, including vehicle title.

1.14 Time of Contract Completion. The Contractor will furnish, install, deliver, and successfully demonstrate all equipment as specified herein; provide the required training; and provide the required service manuals within one hundred and twenty (120) calendar days after issuance of Purchase Order.

1.15 Interested Bidders will contact Roger Krull, Assistant Superintendent of Wastewater Service, at 402-441-7985 or Jerry Morris, Environmental Specialist III, at 402-441-7839, concerning these specifications.

1.16 All bidders must comply with the licensing requirements for motor vehicle dealers established under the Motor Vehicle Industries Licensing Act, Nebraska Revised Statutes, Chapter 60, Article 14. **The licensing requirements must be met at time of the bid opening for bid to be valid.**

2. Step Van Mounted Unit TV Inspection Color System

Component List

Meets Specs. Yes	No		Description
			T.V Van Interior Control Room Specification:
		2.1	One (1) TV step van control room interior to include:
___	___	2.1.1	Bulkhead wall with locking door separating the control room from the drivers area.
___	___	2.1.2	Durable crosswalk vinyl floor covering.
___	___	2.1.3	Interior walls insulated and covered with laminated surface and corresponding protective stripping.
___	___	2.1.4	Insulated ceiling and embossed with an aluminum liner.
___	___	2.1.5	Combination air conditioner (13,500 BTU) and electric heater (5600 BTU), 120 volt roof mounted, also a built-in 1500 watt auxiliary space heater.
___	___	2.1.6	Built-in control console with rack mounts for electronic control equipment, overhead and vertical storage cabinets.
___	___	2.1.7	110 volt flourescent light fixture.
___	___	2.1.8	Electrical outlet dual receptacle (minimum two (2)).
___	___	2.1.9	Fire extinguisher (minimum ten (10) BC rating with bracket).
___	___	2.1.10	Closet/cabinet.
___	___	2.1.11	Padded bench seat with underneath storage.
___	___	2.1.12	Modular control center rack mount.
		2.2	One (1) color TV power control unit, modular control center mount, and NTSC color standard to include:
___	___	2.2.1	The power control unit will provide all the necessary switches, meters, power, and controls to operate and monitor the television inspection system.
___	___	2.2.2	All circuits will be of solid state design, assembled in a rack mounted chassis for installation in a built in control console.
___	___	2.2.3	The faceplate will be heavy gauge aluminum finished with an industrial grade finish and will have permanent labels designating the function or purpose of the various switches, readouts, and controls.
___	___	2.2.4	The PCU will have a back plate for all cable connectors each separately indexed and locking, and labeled as to purpose.
___	___	2.2.5	All receptacles and plugs will be of keyed vibration-proof type to eliminate incorrect or loose connections.

Meets Specs. Yes	No		
___	___	2.2.6	Each camera system will be equipped with a test cable to allow for the direct by-pass of slip rings, TV cable, and any applicable connectors for testing purposes.
___	___	2.2.7	The power control unit will operate off of 120 volts AC current.
___	___	2.2.8	The PCU will contain a solid state light head power source whose input will be through an isolation, variable voltage transformer and whose output will be from 0 volts to 120 volts DC.
___	___	2.2.9	A light intensity adjustment control and DC volt readout will be provided on the front panel.
___	___	2.2.10	Input and output of both the camera and light head power will be protected by circuit breakers with indicators to identify open circuits.
___	___	2.2.11	Circuits will be isolated to provide operator protection from electrical shock hazards.
___	___	2.2.12	The power control unit will be equipped with the following remote camera adjustments:
___	___	2.2.13	Focus Control - A two pole switch spring loaded to off, permits the operator to adjust the camera focus for changes in pipe diameter or different views of defect conditions. In the neutral position, the camera focus will be electronically locked.
___	___	2.2.14	Automatic Iris Control - This control allows the operator to override the camera's automatic light compensating circuitry operating range in the event an excess of light or lack of light produces a poor picture response. With the proper adjustment, the operator can change the iris opening to compensate for the light level available thereby improving the picture response.
___	___	2.2.15	Pre-wired for pan and tilt camera and tractor controls
___	___	2.2.16	Systems requiring manual external camera settings or the removal of the camera from the sealed housing in the field to make these adjustments will not be acceptable.
		2.3	One (1) video data display, logging and reporting system, rack mount, to include:
___	___	2.3.1	A data input system will be provided that displays pipeline information along with the distance location of the camera in the pipe on the monitor screen and permanently on the video tape.

Meets Specs. Yes	No		
___	___	2.3.2	The data view system will permit the input of alpha numeric information.
___	___	2.3.3	The distance location of the camera will be automatically accessed from the electronic footage meter.
___	___	2.3.4	It is the intent of the specifications for the Contractor to furnish and install all necessary equipment and accessories as may be necessary to successfully operate the display and video taping features of the system.
___	___	2.3.5	Mechanical and audio means of recording the information on the video tape after the time of inspection will not be acceptable.
___	___	2.3.6	All circuits will be of solid state construction and assembled in a rack mount chassis designed for installation in a control console.
___	___	2.3.7	The faceplate will be finished with an industrial grade surface and will have permanent labels designating the function of various switches and controls.
___	___	2.3.8	The back plate will be accessible and contain all cable connectors, each separately indexed, locking and labeled as to purpose.
___	___	2.3.9	The system will include a standard "QWERTY" keyboard to allow easy entry of information by the operator at the control console and will include a convenient storage location when not in use.
___	___	2.3.10	The data display system will be a solid state device that is a microprocessor based and will have the following operating features:
___	___	2.3.10.1	Menu driven to provide operators with a help screen and all the necessary on-screen instructions.
___	___	2.3.10.2	Footage will be displayed on a LED readout as well as the TV monitor with the ability to locate the readout at any location on the TV monitor.
___	___	2.3.10.3	Access to a blank screen will be available at any time to permit recording of formatted alpha numeric information.
___	___	2.3.10.4	Select video character brightness (full range white to black).
___	___	2.3.10.5	Select character size (small and large).

Meets Specs. Yes	No		
___	___	2.3.10.6	Select footage count direction (to or away from TV inspection van) allowing operators to count footage from zero to maximum regardless of whether the camera in being towed to the inspection unit from the remote manhole or away from the inspection unit to the remote manhole.
___	___	2.3.10.7	Select footage preset (feet and tenths) allowing the operator to input the distance from the center of the manhole to the focal point of the camera after set up and prior to beginning travel through the pipe.
___	___	2.3.10.8	A footage memory circuit will be included which prevents the loss of any information in the event the onboard power supply is interrupted. When power is resumed, the complete information display will reappear on the screen.
___	___	2.3.10.9	The location line, footage line, and time/date line can be displayed independently after the video tape has been identified.
___	___	2.3.10.10	The display will be further reduced to show footage only.
___	___	2.3.10.11	The information display will be able to be moved horizontally or vertically over the face of the monitor as required.
___	___	2.3.10.12	The unit will have a maximum power consumption of 200 watts 120 volts (+10% to -20% ranges) and operate at 50/60 Hz.
___	___	2.3.10.13	The system will be menu driven to provide the operator with all of the necessary on-screen instructions, including:
___	___	2.3.10.13.1	Line 1: Owner, Company, Contract Number, Job Identification
___	___	2.3.10.13.2	Line 2: Date and Real Clock Time.
___	___	2.3.10.13.3	Line 3: Operator Identification.
___	___	2.3.10.13.4	Line 4: Manhole Identification (upstream and downstream).

Meets Specs. Yes	No		
___	___	2.3.10.13.5	Line 5: Street Address.
___	___	2.3.10.13.6	Line 6: Pipe Type and Diameter.
___	___	2.3.10.13.7	Line 7: Manhole Depth.
___	___	2.3.10.13.8	Line 8: Video Tape Number and Starting Index.
____	___	2.3.10.13.9	Line 9: Starting Footage (Distance) and To/Away From the Designation.
___	___	2.3.10.13.10	Lines 10 and 11: Free Format Comments Line.
___	___	2.3.10.13.11	The system will include a full screen instruction guide (menu) for the operator to enter the desired information while operating the keyboard.
___	___	2.3.10.13.12	The data logger will contain a ratio adjustment function which provides footage data in English units (foot) or metric (meter).

2.4 Color Industrial Monitor - NTSC

___	___	2.4.1	One (1) 17" (minimum) color industrial TV monitor, 450 (minimum) line resolution, NTSC color standard, Built in Speaker.
___	___	2.4.2	The television viewing monitor will be a high quality industrial grade color unit.
___	___	2.4.3	Provide a minimum of 450 lines of horizontal resolution.
___	___	2.4.4	Scanning will be 525 lines, 60 fields, 30 frames, interlaces 2:1 NTSC color standard.
___	___	2.4.5	All circuits will be of a solid state design with the exception of the picture tube.
___	___	2.4.6	The picture will measure a minimum of 17" diagonally.
___	___	2.4.7	The monitor will be housed in a cabinet which acts as a shield to minimize the effects of local magnetic fields such as transformers, coils, wraps, or cable, etc. (Monitors that have inadequate or no protection from local magnetic fields thereby contributing to a loss of purity in the color picture will not be acceptable.)
___	___	2.4.8	The monitor will be equipped with a speaker to allow for audio playback from a video tape recording.
___	___	2.4.9	The monitor will be fitted with a rack mount for installation into a control console.

Meets Specs.
Yes No

___ ___ 2.4.10 Standard color monitor controls will be provided and permanently labeled as to function

2.5 System Engineering Panel

___ ___ 2.5.1 The engineering panel will provide central control and monitoring of the power supply to the system.

___ ___ 2.5.2 The panel circuitry will be assembled in a rack mounted chassis for installation in a built in control console.

___ ___ 2.5.3 The faceplate will be heavy gauge aluminum finish with an industrial grade surface and will have permanent labels designating the function of the various switches and controls.

___ ___ 2.5.4 Provisions will be made on the panel for the following items:

___ ___ 2.5.5 Remote spring loaded generator start/stop switch.

___ ___ 2.5.6 AC volt readout.

___ ___ 2.5.7 AC frequency readout (58-62 Hertz).

___ ___ 2.5.8 Generator hour readout.

___ ___ 2.5.9 Battery condition indicator.

2.6 One (1) Professional Video Tape Recording System

___ ___ 2.6.1 A video cassette recorder/player system will be provided to permanently record on video tape any transmission from the closed circuit television camera.

___ ___ 2.6.2 Recorder will be VHS format.

___ ___ 2.6.3 NTSC color.

___ ___ 2.6.4 120 V AC.

___ ___ 2.6.5 Four (4) video heads.

___ ___ 2.6.6 Rack mounted with front insertion and removal of tape cassette without removing recorder from panel.

___ ___ 2.6.7 It will have a minimum recording time of 120 minutes.

___ ___ 2.6.8 Use in wide tape cassette.

__ __ 2.6.9 A remote control unit will be supplied with the following functions:

___ ___ 2.6.10 Play.

___ ___ 2.6.11 Record.

___ ___ 2.6.12 Fast forward.

___ ___ 2.6.13 Pause.

___ ___ 2.6.14 Frame advance.

___ ___ 2.6.15 Slow motion.

___ ___ 2.6.16 Search.

___ ___ 2.6.17 Stop button.

___ ___ 2.6.18 Rewind button.

__ __ 2.6.19 The video cassette recorder will record and reproduce in all of the following operating modes:

Meets Specs.

Yes No

___ ___ 2.6.20 60 cycles field operating frequency.

___ ___ 2.6.21 Random sync.

___ ___ 2.6.22 Two to one (2 to 1) industrial sync.

___ ___ 2.6.23 EIA color.

___ ___ 2.6.24 NTSC color.

___ ___ 2.6.25 It will be equipped with an audio channel for narration of the recorded video.

___ ___ 2.6.25 Both video and audio signal may be recorded at the same time or dubbed at a later time.

___ ___ 2.6.25 A microphone for adding audio to the video tapes will be provided.

___ ___ 2.6.26 The following summary of features for the video cassette recorder are intended to serve as the minimum basis for standard of quality:

___ ___ 2.6.27 Multi-function display.

___ ___ 2.6.28 Video add recording.

___ ___ 2.6.29 Audio dubbing.

___ ___ 2.6.30 Forward and reverse search playback.

___ ___ 2.6.31 Frame advance and slow motion.

___ ___ 2.6.32 Tape speed (SP, LP, and SLP) mode selection.

___ ___ 2.6.33 RF output/light switch and connector.

___ ___ 2.6.34 Date and clock display.

___ ___ 2.6.35 Tape counter.

___ ___ 2.6.36 Remaining tape indicator and selector.

___ ___ 2.6.37 Slow, rewind/search, fast forward/search and audio dub/video buttons.

___ ___ 2.6.38 Cassette holder.

___ ___ 2.6.39 Indicator panel.

___ ___ 2.6.40 Tracking/slow tracking control and indicator.

___ ___ 2.6.41 Camera input terminal.

___ ___ 2.6.42 Camera remote switch.

___ ___ 2.6.43 Power switch.

___ ___ 2.6.44 Remote control jack.

___ ___ 2.6.45 RF converter channel selector.

___ ___ 2.6.46 Microphone input and audio output/earphone jacks.

___ ___ 2.6.47 Video output and input connectors..

Rear Interior Equipment Room Specification:

3. One (1) TV step van rear equipment interior room to include:

___ ___ 3.1 Bulkhead wall with locking door separating the T.V control room from the rear equipment room.

___ ___ 3.2 Interlocking aluminum floor.

Meets Specs. Yes	No		
___	___	3.3	Insulated walls with smooth wall surface cover.
___	___	3.4	Should include all protective joints, corner strips, and angles.
___	___	3.5	Insulated ceiling and embossed with an aluminum cover.
___	___	3.6	Non-skid safety strips over aluminum floor decking.
___	___	3.7	Three (3) 110 volt flourescent light fixtures.
___	___	3.8	Electrical outlet dual receptacle (minimum two (2)).
___	___	3.9	Commercial power supply receptacle, cord, and plug.
___	___	3.10	One (1) 17" (minimum) color industrial TV monitor, 450 (minimum) line resolution, NTSC color standard.
___	___	3.11	Work bench with four inch (4") vise, overhead cabinets and underneath tool storage cabinet, snap-on or equal.
___	___	3.12	Duplex electrical socket at work bench.
___	___	3.13	Equipment storage racks (minimum one (1) set).
___	___	3.14	Two (2) power cord reel with socket and power light (fifty (50) feet minimum).
		3.2	One (1) wash down system (minimum thirty (30) gallons) to include:
___	___	3.2.1	Wood top work bench with hand wash basin and overhead cabinet.
___	___	3.2.2	Water storage tank.
___	___	3.2.3	Set of fill, vent, and drain connections.
___	___	3.2.4	Water tank demand pump.
___	___	3.2.5	Wash down hose with spring loaded hand nozzle.
___	___	3.2.6	Wash down stainless steel sink.
		3.3	One (1) utility air compressor system including following components.
___	___	3.3.1	1 HP, 120 AC motor.
___	___	3.3.2	Motor control pressure switch.
___	___	3.3.3	One receiver tank, eight (30) gallons with brass drain valve.
___	___	3.3.4	Safety relief valve.
___	___	3.3.5	Air hose with automatic retraction reel (minimum of fifty (50) feet of hose) wall mounted in the equipment room.
___	___	3.3.6	Owner to prior approve the location of air hose reel.
		3.4	Combination Video Transmission/Tow Cable
___	___	3.4.1	A combined video and towing cable will be furnished in a continuous length of not less than 1500 feet.
___	___	3.4.2	The cable will consist of a shielded coaxial center core wrapped with a Mylar insulation.
___	___	3.4.3	A grouping of insulated and color coded standard copper conductors will form a perfectly round lay pattern around the core.

Meets Specs. Yes	No		
___	___	3.4.3	The exterior of the cable will consist of a high strength outer jacket. The cable will have a minimum break strength of 2000 lbs., will be not more than 3/8 inches in diameter and withstand external pressures of up to 400 psi.
___	___	3.4.4	The cable will be equipped with necessary coaxial cable and color coded wires for camera, lights, and tractor functions.
___	___	3.4.5	The system must be able to deliver necessary voltage and amps at the end of 1500 feet of coaxial TV cable to provide the Owner with the ability to effectively inspect storm drains and large diameter sanitary sewer lines with additional equipment, if deemed necessary by the Owner at a later date.
___	___	3.4.6	The end of the cable will be equipped with a scotchcast splice chamber to allow for the direct wiring of the female connector(s) and to transfer the cable towing strength to the camera skid runners.
___	___	3.4.7	The terminal connection will consist of the necessary connectors and dummy plugs as itemized on the component list.
		3.5	Remote Controlled Electric Powered TV Cable Reel Assembly
___	___	3.5.1	A TV cable reel assembly will be supplied with a minimum storage capacity for 1500 feet of 3/8"diameter video transmission cable.
___	___	3.5.2	The reel will be properly reinforced to withstand 200% of the maximum motor torque to insure trouble-free operation.
___	___	3.5.3	The reel will be powered by a variable speed electric motor and driven through a multi-gear ratio transmission. (TV reel systems that do not have a multi-ratio transmission will not be acceptable.)
___	___	3.5.4	The transmission will have multiple speeds to limit the motor load during varying towing conditions.
___	___	3.5.5	The reel will be equipped with an automatic level wind assembly to evenly pay out or rewind the cable to prevent pile-ups, entanglements, and burying.
___	___	3.5.6	The reel will be built into a rugged frame designed for fixed mounting into a unit. (TV reel systems that are not controlled remotely will not be acceptable.)
___	___	3.5.7	The reel drum and level wind will be open to view to allow for inspection during operation.
___	___	3.5.8	The reel will be equipped with a continuous contact rotary slip ring assembly.

Meets Specs. Yes	No		
___	___	3.5.9	The assembly will be equipped with slip rings to conduct the necessary current and signals through the reel.
___	___	3.5.10	The slip ring assembly will be fully enclosed in a dust and weatherproof housing. Systems equipped with the high maintenance copper slip ring assemblies will not be acceptable.
___	___	3.5.11	A single combined controller will be furnished to operate either the TV cable reel motor or power winch motor.
___	___	3.5.12	It will be designed for mounting at the control console in an angular panel.
___	___	3.5.13	The controller will be equipped with an on/off switch, an on indicator light, a red LED lamp to indicate a motor overload condition during operation, clutch control (forward/reverse switch), and speed control with built in automatic off positioning for safety when the operator releases the speed control. Controllers that do not include a safety off switch and motor overload indicator lights will not be acceptable.
___	___	3.5.14	A gear shift selector and linkage will be provided at the control console to operate the reel mounted transmission.
___	___	3.5.15	The reel motor controller and transmission gear shift selector will be combined to maximize the efficiency of the television inspection operation and minimize the load on the reel and motor.
___	___	3.5.16	A speed controller, gear shift selector and on/off switch will be provided at the reel for local control during set up.
		3.6	Footage Meter
___	___	3.6.1	The metering head will be constructed of machined cast aluminum parts and will consist of the necessary sheaves, wheels, and guides to record the in-line movement of the TV camera.
___	___	3.6.2	A mechanical readout will be located at the footage assembly at the rear of the unit.
___	___	3.6.3	The metering head will be equipped with an electronic counter connected to the data view system in the control room.

Meets Specs.
Yes No

Generator Specification:

4. One (1) TV step van power package to include:

___ ___ 4.1 Onan model CMM EFI 5500 commercial grade generator, Model 5.5 HGJAD-2138A+ Gasoline powered, 60 Hz, 5500 Watts, 120 Volts, 45.8 Amps, 1.0 PF, 1 Phase, 2 Pole, 30 Amp Circuit Breaker. with electric local/remote start/stop control.

___ ___ 4.2 Generator storage compartment mounted below floor level with a lockable, hinged, and ventilated external access door.

___ ___ 4.3 Generator enclosure should be lined with fire retardant and noise control material.

___ ___ 4.4 Generator double track slide out rail assembly for external servicing.

___ ___ 4.5 Electric supply center with circuit breaker box, commercial power.

___ ___ 4.6 Flexible exhaust hoses and power cables.

Electrical Specification:

5. The electrical system will be fully designed to sustain the complete electrical requirements of all components of the television inspection system.

___ ___ 5.1 Standard fluorescent lighting and electrical outlet sill be supplied in both the control and equipment rooms.

___ ___ 5.2 Outlets will be installed by all plug-in components and will be so located that all units may be connected in an efficient manner.

___ ___ 5.3 Provisions will be made for disconnection to the generator power supply and for exterior connection to a standard 120 volt house power supply.

___ ___ 5.4 A house power extension cord, minimum 35 feet in length, with respective weather proof end connectors and receptacle will be furnished.

___ ___ 5.5 All electrical wiring will be done in compliance with the National Electrical Code.

6. **Camera's One pan & tilt camera, & one straight line camera.**

___ ___ 6.1 One solid state color pan and tilt sewer camera low light system, to include:

___ ___ 6.2 460 line horizontal resolution and 350 lines of vertical resolution (minimum).

___ ___ 6.3 Remote adjustable optical focus and automatic light compensating iris.

___ ___ 6.4 NTSC color standard.

___ ___ 6.5 Camera controller with remote focus.

___ ___ 6.6 Skid yoke adapter.

Meets Specs. Yes	No		
___	___	6.7	Storage and transport protective case.
___	___	6.8	Automatic white balance.
___	___	6.9	Spare part kits for camera lighting system.
___	___	6.9	High resistance to vibration or mechanical shock.
___	___	6.10	360 degrees rotation.
___	___	6.11	275 degrees mechanical pan.
___	___	6.12	330 degrees optical pan.
___	___	6.13	Excellent color rendition and low light sensitivity.
___	___	6.14	Remote control focus and iris.
___	___	6.15	Automatic white balance.
___	___	6.16	Low lag and high resistance to image burn-in.
___	___	6.17	High resistance to vibration or mechanical shock.
___	___	6.18	Excellent color rendition and low light sensitivity.
___	___	6.19	Fits standard 3" camera skid yoke or tractor camera carriage for inspection of 6" and larger lines.
___	___	6.20	Auto centering switch.
___	___	6.21	Waterproof
___	___	6.22	Minimum illumination. 3 lux sensitivity, f 1.8.
___	___	6.23	.19 lux minimum Illumination sensitivity with 4 time integrator delay, 1.8 f (controller required)
___	___	6.2	One (1) pan and tilt cameras transportation skid set, to include:
___	___	6.2.1	8" to 30" pipe diameter skid spacer plate kit.
___	___	6.2.2	Bottom stainless steel runners (one (1) minimum each).
___	___	6.2.3	Top stainless steel runners (three (3) minimum each).
___	___	6.3	One (1) 3" diameter straight line solid state color TV sewer camera including:
___	___	6.3.1	460 line horizontal resolution (minimum).
___	___	6.3.2	Fixed focus and iris.
___	___	6.3.3	NTSC color standard.
___	___	6.3.4	400 lines of vertical resolution (minimum).
___	___	6.3.5	Storage and transport protective case.
___	___	6.3.6	Spare part kits for camera lighting system.
___	___	6.3.7	Automatic white balance.
___	___	6.3.8	High resistance to vibration or mechanical shock.
___	___	6.3.9	Minimum illumination. 3 lux sensitivity, f 1.2.
		6.4.	Camera Transportation Skids 8'-30" Pipe Sizes 3" diameter for straight line solid state color TV sewer camera.
___	___	6.4.1	A transportation skid assembly will be supplied to provide protection for the camera and light head from in-line obstructions.

Meets Specs.
Yes No

___ ___ 6.4.2 A cast aluminum yoke with an inside lining of high friction cushion material will firmly grip the camera while providing maximum protection to the camera and its case.

___ ___ 6.4.3 Spacer plates will be provided to attach the bottom skid runners to the yoke.

___ ___ 6.4.4 The camera skid assembly will be adjustable to inspect line sizes from 8" to 30"by substituting spacer plates. This adjustment will be made without removal of the camera from the yoke assembly.

___ ___ 6.4.5 Two corrosion resistant stainless steel skid runners will be provided to tow the camera through the line.

___ ___ 6.4.6 The runner ends will be bent upward to provide a natural lift when encountering pipe offsets and small obstructions.

___ ___ 6.4.7 The runner ends will be machine slotted to insert the ball ends of the camera tow and tag cables.

___ ___ 6.4.8 Three (3) corrosion resistant stainless steel skid guards will attach to the yoke to protect the light head in the event the camera should be turned over in the line.

___ ___ 6.4.8 The skid runners and guards will be machined to a round and smooth contour to minimize fouling from debris in the sewer lines.

Transporters:

Track Tractor Style for Pan & Tilt Cameras.

6.5 One (1) self-propelled camera transporter-power track.

___ ___ 6.5.1 Weighted track with adjustment bars provided for operation in pipes ranging from 6" through 24" diameter sizes.

___ ___ 6.5.2 Transporter assembly with 1/8 HP drive motor minimum.

___ ___ 6.5.3 Forward, reverse, and free wheel capability.

___ ___ 6.5.4 Spare parts kit to include additional chain links and rubber pads.

___ ___ 6.5.5 Transporter control box with speed adjustments, volt and amp meters, safety off switch, and directional control switch.

___ ___ 6.5.6 Insertion/extractor tool with three (3) extension poles for tractor and skid system.

___ ___ 6.5.7 The transporter will have full variable speed in the forward mode, from 0 to 50 feet per minute running capability.

___ ___ 6.5.8 In reverse operation, the transporter will be designed for both free-wheel and power reverse capability.

__ ___ 6.5.9 The free-wheel clutch and powered reverse mode will be engaged and dis-engaged from the transporter controller at the operator's station.

Meets Specs. Yes	No		
___	___	6.5.10	It will operate through a minimum of 1200 feet of cable.
___	___	6.5.11	The transporter will have sufficient power and traction to inspect up to 700 feet from the manhole entry point.
___	___	6.5.11	The transporter will be designed to carry a 3" OD x 22" long standard or pan and tilt style sewerline TV camera and allow for the addition of the proper lighting to inspect pipes beginning at a minimum diameter of six (6) inches.
___	___	6.5.12	The combination of a transporter, low profile high performance light head, and a standard or pan and tilt camera will provide a minimum of one (1) inch of clearance in a six (6) inch pipe.
___	___	6.5.13	The transporter will be capable of inspecting pipes up to 24" diameter with the simple extension of the tracks.
___	___	6.5.14	The transporter and camera assembly must be designed so the camera can be used independently with standard towing skids, a hand winch and a power winch assembly when necessary. (Self-propelled transporter devices including an integral camera will not be acceptable.)
___	___	6.5.15	The pads will be easily replaceable and a kit with additional chain links and rubber pads will be supplied.
___	___	6.5.16	The drive motor will be specially designed to meet the power requirement of the system.
___	___	6.5.17	The motor will be mounted in a heavy-duty waterproof metal case.
___	___	6.5.18	The speed and direction of the transporter will be controlled from the control console.
___	___	6.5.19	The controller will be equipped with the following:
___	___	6.5.20	An on/off switch.
___	___	6.5.21	An on indicator light.
___	___	6.5.22	An amp meter to indicate a motor overload condition during operation.
___	___	6.5.23	A directional switch to control the forward, reverse, and free-wheel mode of the transporter.
___	___	6.5.24	A speed control with built in automatic off positioning for safety when the operator releases the speed control.
___	___	6.5.25	The speed control will allow for an infinite control of the speed of the transporter from stop to maximum speed.
___	___	6.5.26	Controllers which do not include a safety off switch will not be acceptable.
___	___	6.4.27	The self-propelled tractor camera carriage system will include necessary manuals, storage and shipping box, and a set of maintenance spare parts.

Meets Specs.
Yes No

7. **TV maintenance, operation, and training package to include:**

___ ___ 7.1 TV maintenance tool kit.

___ ___ 7.2 Manual operation, instruction and maintenance TV (two (2) minimum).

___ ___ 7.3 Manual spare parts with current part list, prices, and catalog numbers.

8. **TV Maintenance Tool Kit**

___ ___ 8.1 A kit containing sets of tools will be furnished in a box. The kit will contain the necessary items to field test, adjust, and repair a number of components on the television systems.

9. **Operating Manuals**

___ ___ 9.1 Operating manuals will be furnished that contain the recommended operating instructions and maintenance procedures for all systems and components being furnished. The instructions will provide step-by-step use methods and include adequate illustrations, diagrams, and other aids. Special attention will be given to safety considerations for personnel and the equipment.

10. **Systems Parts Book**

___ ___ 10.1 A parts book supporting field repair and replacement of the various components of the delivered systems will be furnished. This book will include exploded or cutaway drawings of numerous components and assemblies with each drawing description referencing a manufacturer's part numbers

11. **Instruction and Testing**

___ ___ 11.1 The Contractor will fully instruct and test Owner's personnel in the operation of the equipment furnished before the delivery at the contractor manufacturing plant. The instruction period will be for 3 working days to fully familiarize the buyers operating personnel. The instruction and testing will be conducted by the Contractor's field service technician and will include component familiarization, theory of operation, equipment operation, field procedures, techniques of use, troubleshooting, maintenance recording, and logging of sewer conditions and safety procedures. Training provided by sales or office personnel will not be acceptable.

Meets Specs.
Yes No **Optional Color Cameras**

___ ___ 12. One portable push system for video inspection with a , 1.5 inch diameter camera with light head that will access 2 inch through 6 inch (2"-6") pipe line. It shall be designed inspect up to 100 feet. The system will have a control unit, high resolution LCD monitor, alpha numeric data generator, electronic iris, shatterproof lens, shock resistant, water resistant.

___ _____ 12.1 Built in 12 volt battery & charger.
_____ _____ 12.2 6.4 inch color monitor with glare shield
_____ _____ 12.3 Connecting jack for video in and out
_____ _____ 12.4 Coiler to truck system translator module and interface cable
_____ _____ 12.5 Video display system with electronic footage meter
_____ _____ 12.6 Built in keypad for set up functions
_____ _____ 12.7 450 lines resolution
_____ _____ 12.8 0.3 lux
_____ _____ 12.9 AC power input
_____ _____ 12.10 Built in locator receiver for accurate measurements

13. **Optional Lateral Evaluation Television System**

___ ___ 13.1 Launcher frame assembly with tread tractor drive with forward, reverse, and neutral.
___ ___ 13.2 Launch drive unit with rotation and insertion angle positioners, and push cable drive unit.
___ ___ 13.3 Lateral evaluation television system control box, including:
___ ___ 13.4 Insertion/retraction control for push camera.
___ ___ 13.5 Variable push speed control with auto resetting overload circuit breaker.
___ ___ 13.6 Set volt and amp meters.
___ ___ 13.7 Joystick insertion control for elevation and rotation.
___ ___ 13.8 PIP selector control.
___ ___ 13.9 Footage pop-up and reset control.
___ ___ 13.10 Camera selector switch, push or pan and tilt camera.
___ ___ 13.11 Mini push cameras, color, with light head and spare parts with self leveling image.
___ ___ 13.12 Pan and tilt color mini camera for positioning lateral camera.
___ ___ 13.13 Push cable assemblies (.52"), 80', for 3", 4", and 6" laterals.
___ ___ 13.14 Set tractor tread riser bars spreaders and drive transmission couplings for 8", 10", 12", and larger mains.
___ ___ 13.15 Truck mounted lateral evaluation television system motorized reel with clutch system and 1,000' of float line.
___ ___ 13.16 Interconnect cable, launcher to push cable, 80'.

Meets Specs.		
Yes	No	
___	___	13.17 Interconnect cable, control box to power control unit.
___	___	13.18 Coaxial cable, reel mounted for control of the lateral cable.
___	___	13.19 Storage reel for push cable.
___	___	13.20 Push skids, sleeve with finger type.
___	___	13.21 Set spare parts.
___	___	13.22 Set of test cables for push and fixed cameras.
___	___	13.23 Set adapter cables to customer's TV/cable termination.

TV STEP VAN SPECIFICATION

The truck body and chassis will be of a current year model and will be of sufficient GVW for the existing or future services intended. All legally prescribed devices and lighting will be installed to meet OSHA laws per ICC regulations, U.S. DOT requirements, and standard model features.

1. Detailed Specifications:
   - 1.1 Step Van Chassis 14 foot load space
   - 1.2 Make - Utilmaster
   - 1.3 Model - Aeromaster
   - 1.4 Engine: Ford
   - 1.5 Base Equipment - 6.8 liter (415 cubic inch) V-10
   - 1.6 Fuel Delivery - EFI
   - 1.7 316 net HP @ 4250 RPM
   - 1.8 Torque 420 @ 3250 RPM
   - 1.9 Transmission: Electronic 4- Speed Automatic With OD w/99S.
   - 1.10 Limited Slip With 4.56 Axle Ratio
   - 1.11 Wheels: 16"*6" White Painted Steel (DRW)
   - 1.12 A/C Prep Package.
   - 1.13 Black Painted Front Bumper.
   - 1.14 158 inch Wheel Base
   - 1.15 GVW 14050 lbs
   - 1.16 Fully undercoated.

Meets Specs.			
Yes	No		
___	___	2.1	Full width rear roll up door with drip rails.
___	___	2.2	Hand hold grip, rear entry, curb side.
___	___	2.3	Full width sliding keyed side doors with drip rails.
___	___	2.4	Sliding windows - driver and curb side door.
___	___	2.5	Full width rear step bumper - 12 gauge steel tread plate.
___	___	2.6	Front and rear tow hooks.
___	___	2.7	Low profile insulated removable engine cover for easy internal access.
___	___	2.8	Convenient built-in document holder on engine cover.
___	___	2.9	Standard lights, including stop/turn, license plate, back-up, and ICC running lights.
___	___	2.10	Exterior mirrors, double West Coast Wide Angle System.
___	___	2.11	Dual windshield wiper motors and washer, intermittent cycle with dash or column control.
___	___	2.12	36,000 BTU heater with 453 CFM blower - 2 speed minimum.
___	___	2.13	Extruded welded interlocking all aluminum flooring - continuous front to rear.

Meets Specs.

Yes	No		
___	___	2.14	All aluminum tread plate installed on step wells and entire cab floor area.
___	___	2.15	Two amber electronic strobe warning beacons, roof mounted and located at the front and rear of the van.
___	___	2.16	Adjustable floodlights rear of vehicle illumination.
___	___	2.17	Backup alarm.
___	___	2.18	Color - white.
___	___	2.19	The interior of the van body will be divided into three areas of operation:
		2.19.1	Driver's compartment. control room (operator's station and viewing room). The drivers compartment will be separated from the control room by a wall to wall bulkhead with a lockable swing door.
___	___	2.19.2	Equipment room (equipment mounting and storage area). The equipment room will be separated from the control room by a wall to wall bulk head with a lockable swing door.
___	___	2.19.3	The unit will be wired for power, lighting, and all electronic equipment.
___	___	2.19.4	The electrical system will be installed in conduit.
___	___	2.19.5	Appropriate lighting will be installed in the control and equipment rooms.
___	___	2.19.6	All wiring will be done in accordance with all applicable electrical codes.
___	___	2.19.7	Electrical connectors will be twisted, sorted, and heat shrunk. Scotch lock connectors will not be acceptable.

Contractor Information Sheet

Each Contractor will furnish the following information with this proposal.

Camera (rotational)_____
Camera make _____
Model # _____
Color_____
Diameter _____
Minimum illumination _____ lux
Image vertical pixels _____
Resolution vertical _____
Preset focus _____
Remote focus _____
Iris _____ with override _____
Rotation of camera head _____ degrees
Pan and tilt angle _____ degrees
Maximum viewing angle _____ degrees
Reverse view capability _____yes_____ degrees_____no
Spherical viewing percentage_____ percent
Maximum viewing angle _____ degrees

Light head
Directional moving with camera head _____ yes_____ no
Sewer line full submergence:_____ yes_____ no

Camera (Mainline)
Camera make_____
Model no. _____
Color _____
Diameter _____
Minimum illumination _____ lux
Image vertical pixels _____
Resolution vertical _____
Preset focus _____
Remote focus_____ with override _____
Maximum_____
Iris _____ viewing angle _____ degrees
Maximum viewing angle _____ degrees

Operating Range
Lines size range: _____ to_____
Sewer line full submergence_____ yes_____no

Transporter

Forward _____ Reverse _____ Free-wheel _____
Speed (forward model) _____ to _____ feet/minutes
Remote operation _____
Tractor total length _____
Number of pads _____
Maximum pipe inspection before disassembly_____ inches

Monitor

Make _____ Model No._____ Size _____

Video Tape

Recorder make _____Model No._____

Data Recording System

No. of on-screen lines _____
Keyboard type_____

Generator

Make_____Model No. _____ Watts _____

Power Control Unit

Multi-conductor_____
Single-conductor_____
Light head power selector_____(number of positions)
Light head lamp overdrive production_____
Auto reset breaker _____
Pre-wired for pan and tilt camera _____ Tractor _____

TV Cable

Multi-conductor _____
Single-conductor_____
Single steel armored wrap_____
Length_____Break strength _____
Diameter_____Jacket material_____

Lighting System

Small light head 6"-18" _____
Pipe size range_____to _____
Light bulb wattage_____
No. bulbs used_____
Maximum lumen rating_____
Large light head 8"-60"_____
Pipe size range_____ To_____

Light bulb wattage _____
No. bulbs used _____
Maximum lumen rating _____

Power TV Cable Reel Supplied
Remotely controlled from operator's station _____
Equipped with level wind _____ Remote Clutch _____
Transmission with gear selector _____

Washdown System
Water supply tank size _____ gallons
Hose length _____

Utility Air Compressor
Make _____ Model # _____
Horse power _____ Voltage _____
Tank Capacity _____ No. of tanks _____

Loaner or Rental Equipment (also state charges after warranty)
During Warranty
- Pan and tile camera $ _____ per day
- 3" solid state camera $_____ per day
- Power control unit $ _____ per day
- Data recording system $_____ per day
- Self-propelled transporter $_____ per day

After Warranty
- Pan and tile camera $ _____ per day
- 3" solid state camera $_____ per day
- Power control unit $ _____ per day
- Data recording system $_____ per day
- Self-propelled transporter $_____ per day

Warranty (state period of time on each item)
Camera _____ Auxiliary monitor _____
System control unit _____ Video data display _____
Monitor _____ Video tape recorder _____

Training
Training provided with unit _____ days

Service Center
Location _____
Phone _____

CONTRACTOR VEHICLE INFORMATION SHEET

Bidder will confirm compliance of offer with specification by answering the following questions and providing requested information

Manufacturer _____
Make _____
Model _____
Engine BHP _____
CID _____
Fuel _____
GVWR _____
Wheel base _____
Body style _____
Color _____
Vehicle air conditioner _____
Cab style _____
Equipment room floor decking material _____
Floor length (inside rear door to back of driver's seat) _____
Overall Roof Height of vehicle _____ inches
Fuel tank capacity _____ gallons
AM/FM radio_____
Intermittent wipers _____ yes_____ no

Submitting this information does not relieve Contractor from providing vehicle in strict accordance with specifications.